

**WEED HOSTS OF ROTYLENCHULUS RENIFORMIS IN ORNAMENTAL NURSERIES
OF SOUTHERN FLORIDA.**

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Rotylenchulus reniformis Linford and Oliveira, 1940 is an economically important pest found primarily in tropical and subtropical countries (4). The species is widely distributed in the Caribbean Basin, South America, Africa, India, Pakistan, Southeastern Asia, Australia, and Japan (8). Rotylenchulus reniformis is also present in Hawaii and the southeastern United States (1). In Florida, R. reniformis has been detected in greenhouses and fields in most counties. Under field conditions this species occurs in sandy loam or loamy soils of northern Florida and in Rockdale and marl soils of southern Florida. It is especially abundant in the Rockdale soils, where it damages several vegetable crops (e.g., beans and squash) (6,7). In southern Florida, tomato is a major crop that escapes nematode damage because it is grown in fumigated soils. In addition to being a pest of vegetable crops, R. reniformis is of importance to ornamental growers in Florida because restrictions are imposed by some states such as Arizona and California on ornamental shipments infested with this nematode.

The host status of ornamental plants to R. reniformis is not well known, mainly because of the great diversity of plant species used as ornamentals and the frequent introduction of new plant species and varieties by the ornamental industry. In southern Florida some of these ornamental plants are grown in containers under poor sanitary conditions or in fields that are infested with R. reniformis. Under these conditions, ornamentals may become infected or contaminated with R. reniformis regardless of their host status.

In 1989, an investigation was initiated in four representative ornamental nurseries of southern Florida in order to determine the main source of R. reniformis infestations in them. During our study it was observed that many weeds associated with the ornamental plants were the main reservoir of R. reniformis. Weed species infected with R. reniformis were often associated with ornamental palms (Figs. 1,2). A list of these and other weeds that support R. reniformis infection and reproduction is reported in Table 1. Some of these weeds, spiny amaranth (Amaranthus spinosus L.), spurge (Euphorbia hirta L.), Santa Maria (Parthenium hysterophorus L.), common purselane (Portulaca oleracea L.), and malanga (Xanthosoma sp.), are reported as hosts of reniform nematode in other areas, such as Hawaii, Puerto Rico, and India (1,5).

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Fig. 1. Dense stand of artillery plants (Pilea microphylla) infected with Rotylenchulus reniformis growing adjacent to an ornamental palm in a southern Florida nursery.

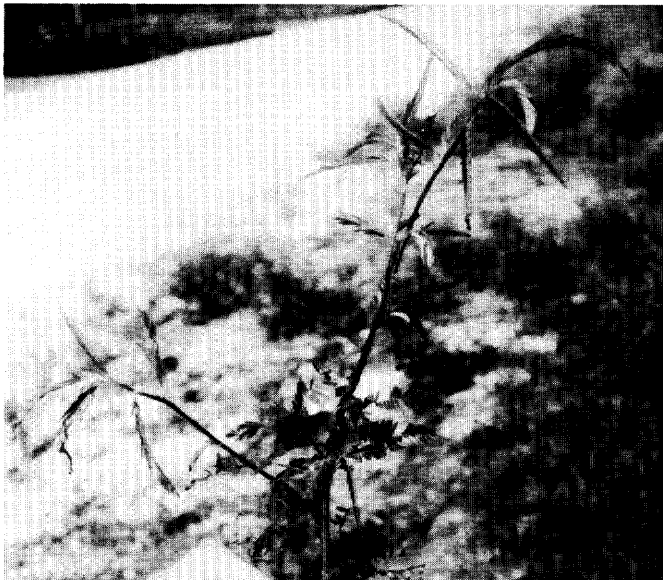


Fig. 2. A Rotylenchulus reniformis infected joint vetch (Aeschynomene americana) plant collected on the premises of an ornamental nursery.

Nematode biology as related to nematode contamination of ornamental plants. Rotylenchulus reniformis immature females, males, and juveniles are the active vermiform stages which are found in the soil. Immature females penetrate with the anterior portion of their bodies into roots and establish permanent feeding sites in the root stele where they remain as sedentary parasites. The posterior portion of their bodies protrude from the root surface and become swollen with sexual maturation and egg deposition (Fig. 3). Rotylenchulus reniformis can thus become a contaminant to nonhost ornamentals because of the several life stages present in the soil or in infected weed roots that are intermixed with those of the ornamental plant.

Table 1. Weed hosts of Rotylenchulus reniformis associated with ornamental plants in southern Florida nurseries.

Weed species	
Scientific Name	Common name
<u>Aeschynomene americana</u> L.	sensitive or American joint-vetch
<u>Amaranthus spinosus</u> L.	spiny amaranth
<u>Artemisia</u> sp.	
<u>Bidens pilosa</u> L.	Spanish needle
<u>Colocasia</u> spp.	wild taro
<u>Commelina diffusa</u> Burm. f.	day flower
<u>Euphorbia heterophylla</u> L.	spurge
<u>E. (=Chamaesyce) hirta</u> L.	spurge
<u>Galinsoga ciliata</u> (Raf.) Blake	Peruvian daisy
<u>Ipomoea</u> spp.	morning glory
<u>Parthenium hysterophorus</u> L.	Santa Maria
<u>Phyllanthus carolinensis</u> Walt.	spurge
<u>Pilea microphylla</u> (L.) Liebm.	artillery plant
<u>Portulaca oleracea</u> L.	common purslane
<u>Waltheria indica</u> L.	sleepy morning
<u>Youngia japonica</u> (L.) DC.	crepis
<u>Xanthosoma</u> spp.	malanga



Fig. 3. Swollen females of Rotylenchulus reniformis with the posterior portions of their bodies and egg masses protruding from the root surface. Scale bar = 95 μ m.

Control. Good sanitation practices are the major means of managing R. reniformis in nurseries. The most effective practice is to grow ornamentals in sterilized soil in pots which are not in direct contact with the soil. When ornamentals must be grown in field soil, mechanical and chemical removal of all weeds from the premises of ornamental nurseries reduces considerably the possibility of infection or contamination of ornamental plants with R. reniformis. In the absence of a host, this parasite is not able to survive more than 6-8 months (3). There are limited choices of nematicides registered for use in ornamental nurseries (2) and their efficacy against reniform nematode in the nursery is not clearly established.

Survey and Detection. Plant inspectors should include weeds listed in Table 1 among the plants that should be sampled if these plants are associated with ornamental plants that are to be certified free of R. reniformis.

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